REMARKS

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1. In response to the Examiner's objection to the informalities on page 7 of the specification in line 24, Applicant has corrected "a" for -α-.

2. In response to the Examiner's objection to claims 16, 19 and 20, Applicant has corrected the following informalities: in claim 16, line 5 "for radial" has changed for "four radial", in claim 16, line 10 the period has changed for a semi-colon, in claims 19 and 20 line 1 "claim 15" has changed for "claim 18", in claim 19 the semi-colon has changed for a period.

3. Applicant respectfully disagree with the Examiner's rejection of claims 1-17 over U.S. Patent 1,450,454 issued to Roney because the specification and the claims of Roney's patent have contradicted to the specification and the claims of the present Application. In Roney's machine, the feathering paddles 15 are disposed radially from the driving shaft 5 (see figures 1-4, page 1 lines 22-27) and are rotated around the radial axes 2-2 with the speed which is twice less then the speed of rotation of the driving shaft 5. The machine includes "the gears having a two-to-one ratio" (see claim 1, page 2 right column lines 20-21) and " means for half-turning the paddles of said propellers at each revolution" (see claim 2, page 2, right column lines 29-30). During the rotations, the flat surfaces of the paddles 15 are always oriented along the radial axes 2-2. The paddles 15 are moving around the driving shaft 5 along circular trajectories and

each paddle produces one propulsion stroke during each turn of the driving shaft 5. For developing a propulsion force with such a disposition of the paddles 15, they must be rotated around radial axes with the speed twice less than around the axis of the driving shaft 5.

In opposite to such design and method, in the present invention the propeller blades (57a, 58a, etc.) are oriented in the planes of rotation which are perpendicular to the respective radial axes of rotation so that the flat surfaces of the propeller blades are always parallel to the axis of the driving shaft and are perpendicular to the respective radial axes. With such disposition of the blades, their speeds of rotation around the radial axes must be equal to the speed of rotation of the driving shaft. That is why each of the planet bevel gears (32, 33, 34 in FIG. 2; 55, 56 in FIG. 5; 77, 78 in FIGS. 9 and 15) is engaged with the sun bevel gear, respectively, (31 in FIG. 2; 54 in FIG. 5; 68 in FIGS. 9 and 15) with one-to-one ratio (see page 7 lines 3-5, page 12 lines 22-24, page 14 lines 6-9) and the radial output shafts are constrained by planetary gear engagement of the planetary gearbox to rotate with the speed of rotation of said planetary gearbox (see claim 15 page 20 lines 22-25).

Independent claim 1 (page 17 line 9), independent claim 8 (page 19 line 2) and independent claim 15 (page 20 line 24) of the present Application are teaching the necessity of the same speed of rotation of the propulsion blades around the driving shaft and around the radial axes. Claim 2 (page 17 lines 22-24), claim 9

(page 19 lines 19-21) and claim 15 (page 20 lines 31-33) of the present Application are teaching that "said substantially flat propeller blades are disposed substantially in planes of rotation of the radial axes." All the remaining claims of the present Application appears also to be contradicted to the Roney's patent because they are dependant on these three independent claims 1, 8 and 15.

In opposite to the Roney's machine, the propeller blades of the present transverse propeller are moving along the complicated trajectories with changeable distances from the axis of the driving shaft depending on the angle positions of the blades. During each turn of the driving shaft, each propeller blade produces two propulsion strokes. Two blades rotated in parallel planes can develop two propulsion strokes simultaneously.

As a result of these differences between the Roney's machine and the present transverse propeller, there are absolutely different manners of movement of the working blades and different methods of developing the propulsion force in these two propulsion systems.

5. Applicant respectfully disagree with the Examiner's objection to the preliminary amendment filed November 12, 2004 as a "new matter" because of "the different shape of the gearbox on the engine case extension 16, worm gear instead of bevel gear engagement and the coupling 109 of the output shafts".

Applicant draws the Examiner's attention to the fact that all the mentioned features are not the subject of the invention within

the scope of pending claims 1-20. These features relate not to the invented transverse propeller but to the design of the engine case extension on which the invented transverse propeller is mounted.

The preliminary amendment is simply an additional illustration of the statement disclosed in the originally filed specification that "an embodiment of the propulsion apparatus described with electrical drive can be used with an internal combustion engine or any other type of drive" (see page 16 lines 4-6).

The planetary gearboxes 59 and 59' with four balanced propelling means 82, 83, 84, 85 and 82', 83', 84', 85', respectively which are shown in FIGS. 12-15 of the preliminary amendment have already been disclosed in originally filed specification (see figures 9 and 10, page 13 lines 33-35 and page 14 lines 1-18). The identical details have the same designations. These planetary gearboxes 59, 59' are mounted on the ends of the horizontal shaft of the case extension 16 of the outboard internal combustion engine 10 which have already been disclosed in FIGS. 1, 2, 4a, 4b, 5 of the originally filed specification. This engine case extension 16 can be of any desired shape and size (see page 7 lines 29-30).

As is pointed out in the originally filed specification, "the preferred embodiments of the present invention illustrated in figures 1-11 are not confined to the details as set forth and are not intended to be exhaustive or to limit the invention to the precise form disclosed" (see page 16 lines 1-4).

Those skilled in the art understand that the invented transverse propeller of the any disclosed embodiment can be mounted on different types of the watercraft, outboard engines or their case extension which are shown in all the drawings schematically without confining to the details. Such design details like the shape of the engine case extension with the gearbox, type of gear engagement or shaft couplings within this box are shown in the drawings only for illustrating the possibility of mounting the invented transverse propeller on the horizontal shaft of different types of the engine case extensions. These well known details of the engine case extension are not the subject of the invention and have no reflection in the claims 1-20. They can be of any desired type and may be shown or not shown in the drawings without any influence on the invented transverse propeller. That is why these details cannot define any "new matter" of the invention.

When it comes to development of this invention, the invented transverse propeller can be mounted on different boats or any other types of watercraft with different outboard engines having various engine case extension of different shapes or sizes and having different inner design including gear engagements, shafts couplings, etc. If the mounting of the invented transverse propeller on a watercraft or an engine which not corresponds in details to the example shown in the patent would create "a new matter", there would be no sense in such an invention. That is why it is pointed out in the specification that "the invention is

intended to cover any modifications, which may be variously practiced within the scope of the claims or their legal equivalents, rather than by examples given" (page 16 lines 7-9).

6. Applicant appreciates the Examiner's allowance of the claims 18-20 which were objected only as being dependent on the rejected claim 15.

7. In response to the Examiner's objection to the drawings because the lines, numbers and letters are not uniformly thick and well defined, Applicant is now correcting all the drawings in figures 1-15 in compliance with 37 CFR 1.121(d). As usual, all the corrected professionaliy made drawings will be send to the Examiner by the time of receiving the allowance of the claims.

8. In this regard, Applicant respectfully submits that the Application is in condition for allowance and solicits early notification of same. Applicant draws the Examiner's attention to the petition to make the Application special according to 37 CFR 1.102 C filed on Dec. 16 2003.

Respectfully submitted

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Enclosed:

1. Corrected pages 7 and 21 of the specification.
2. Marked up copies of the substitute pages 7 and 21 of the specification.

gear 31 which is fixed on the extension 29 and three identical planet bevel gears 32, 33, 34 which are fixed on three radial output shafts 35, 36 and 37, respectively. Each of the planet bevel gears 32, 33, 34 is engaged with the sun bevel gear 31 at right angle with a one-to-one ratio. The radial output shafts are disposed substantially 120 degrees from each other. Each radial output shaft is mounted in two bearings 38 and 39 which are mounted in the housing 26 and on the central hub 27, respectively. The radial output shafts 35, 36, 37 extend out of the planetary gearbox through sealing elements 40. Three propelling means 41, 42 and 43 are affixed to the ends of the radial output shafts 35, 36, 37, respectively. They are disposed perpendicular to the axes of the radial output shafts and extend in two opposite directions from that shafts. Each of the propelling means 41, 42, 43 includes a propeller blade 41a, 42a or 43a which is balanced by one of the counter-weights 41b, 42b or 43b relative to one of the axes of the radial output shafts 35, 36, 37, respectively. The centers of gravity of the propelling means 41, 42, 43 are disposed on the axes of the radial output shafts 35, 36, 37, respectively. Three propeller means 41, 42, 43 disposed 120 degrees from each other are also balanced relative to the axis of the driving shaft 21.

The propeller blades 41a, 42a, 43a are substantially flat and are disposed in the planes of rotations around the radial output shafts 35, 36, 37, respectively, or at acute angles -α- with that planes. Preferably, they have airfoil cross-sections in these planes to reduce a resistance in the water during rotations around the radial output shafts. The gearbox 15 and the planetary gearboxes 24, 25 can be filled with a lubricating oil.

Those skilled in the art understand that the engine case extension 16 can be of any desired shape and size and the gearbox 15 can be mounted on that case extension at such a height that the driving shaft 21 and the planetary gearboxes 24, 25 will be disposed under the water level or over the water level.

In the operation, the planetary gearboxes 24, 25 are rotated by the driving shaft 21 in the direction of arrow R. Simultaneously

intercrossed lines which are substantially perpendicular to the axis of said support rod and to each other, two pairs of said propelling means being mounted on said four radial output shafts, wherein:

- said planes of rotations of one pair of said propelling means around said radial output shafts are substantially perpendicular to said planes of rotations of another pair of said propelling means around said radial output shafts;

- said planetary gearbox includes a sun bevel gear mounted on said support rod, at least one planet bevel gear engaged with said sun bevel gear and four identical bevel gears engaged with each other.

17. The propulsion apparatus of claim 15, wherein said support rod is disposed substantially horizontally in such a height over the water level that said fluid moving means extend into the water when they are orientated generally downwards.

18. The propulsion apparatus of claim 15, wherein said planetary gearbox is rotated by an outer rotor type brushless electric motor, including:

- at least one inner stator secured to said support rod;

- at least one outer rotor disposed coaxially with said support rod and secured to said planetary gearbox.

19. The propulsion apparatus of claim 18, wherein:

- said inner stator includes a plurality of protrusions serving as cores for electrical coils.

20. The propulsion apparatus of claim 15, wherein:

- said outer rotor comprises a plurality of permanent magnets disposed on inside surface of said outer rotor.